

Claims

1. A method of producing a thin film using opposing electrodes, said method comprising the step of:

applying a pulse voltage on said opposing electrodes under a pressure of 100 to 1600 Torr in an atmosphere comprising a gaseous raw material including a carbon source to generate discharge plasma so that a thin film is formed on a substrate, wherein said pulse voltage has a pulse duration of 10 to 1000 nsec.

2. The method of claim 1, wherein said pulse voltage has a pulse rise time of 1000 nsec or shorter.

3. The method of claim 1, wherein said pulse voltage has a pulse fall time of 1000 nsec or shorter.

4. The method of claim 1, wherein said thin film comprises diamond like carbon.

5. A thin film produced by the method of claim 1.

6. The thin film of claim 5 comprising diamond like carbon.

7. The thin film of claim 5 having a hardness of 10 GPa or higher.